Allogeneic SCT is curative therapy in patients (pts) with AML/ MDS. Reduced toxicity conditioning with fludarabine and treosulfan (FT) is a dose intensive regimen with enhanced anti leukemia effect and acceptable toxicity. However, relapse after SCT remains the main obstacle to cure. Natural killer (NK) cell alloreactivity has documented role in reducing relapse after haploidentical SCT in AML but its role in HLA matched SCT is more controversial. The missing ligand theory suggests that missing KIR ligands in the recipient may drive donor NK alloreactivity in the absence of HLA mismatch. There is no data on NK cell role in treosulfan based conditioning. Here we analyzed the prognostic factors for relapse and overall survival (OS) in 203 pts with AML (n=129, 29 secondary) and MDS (n=74) given SCT from matched sibling (n=97) or matched unrelated donors (n=106) using FT conditioning. Median age was 58 years (21–76). Disease status was CR1 (n=65), CR2/3 (n=24), no CR (n=44) or previously untreated MDS (n=70). 67% expressed at least one Bw4 antigen, 81% expressed C group 1 alleles and 66% C group 2 alleles. With median follow-up of 48 months (6-108) 86 pts are alive, 66 died of relapse and 51 of non-relapse causes (NRM). 5-year OS and leukemia-free survival (LFS) rates were 39% and 36%, respectively. 5-year cumulative incidence of relapse and NRM was 38% and 27%, respectively. The most significant predictor of relapse was disease status at SCT. 5-year relapse rates were 33% in CR/ untreated MDS and 55% in refractory disease (p=0.001). Pts expressing HLA C group 1alleles had a relapse rate of 45% compared to 26% in pts with missing group 1 ligands (p=0.03). Missing HLA C group 2 or Bw4 ligands had no effect on relapse. Multivariate analysis identified no CR at SCT (HR 3.6, p=0.001), missing HLA C group 1 ligand (HR 2.6, p=0.03), sibling donor (HR 1.8, p=0.04), poor cytogenetics (HR 1.7, p=0.05) and female donor to male recipient (HR 0.5, p=0.06) as independent factors predicting relapse. The reduced relapse rate associated with missing HLA C group 1 ligand was more pronounced in pts with MDS/ secondary AML, 39% Vs 7%, respectively (p=0.02) and in pts in untreated disease or no CR, 46% Vs. 8%, respectively (p=0.02). Missing HLA ligands were not associated with GVHD or NRM. LFS was 46% in pts with missing HLA C group1 ligand compared to 30% in pts expressing the ligand (p=0.07). Multivariate analysis identified SCT not in CR (HR 2.8, p=0.0007), SCT comorbidity score > 2 (HR 1.5, p=0.06) and missing HLA C group 1 ligand (HR 1.9, p=0.02) as independent predicting factor for LFS. In conclusion, missing HLA C group 1 ligand in SCT recipients with AML/ MDS may be associated with reduced relapse risk, similar NRM and improved LFS possibly due to enhanced NK alloreactivity. These observations merit further study in larger cohorts and in pts given other conditioning regimens to elucidate the potential role of treosulfan conditioning in these findings.

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Guilain-Barre' Syndrome (GBS) Post Adult Cord Blood Transplantation in a Patient with Chronic Lymphocytic Leukemia (CLL)

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Immune mediated demyelinating disease after allogeneic stem cell transplantation is a rare entity with unclear etiology. Acute inflammatory demyelinating polyneuropathy (AIDP) has been reported post related and unrelated allogeneic stem cell transplantation but no such case has been reported post unrelated cord blood transplantation. We hereby present the first case of GBS post double umbilical cord blood transplantation (DUCBT).

A 55 year old male with relapsed refractory CLL received DUCBT with two 5/6 matched cord units, with fludarabine, cytoxan and total body irradiation based intensity conditioning regimen. GVHD prophylaxis was with cyclosporine and mycophenolate. Patient developed grade 4 acute GVHD of the gut with a complete resolution with steroid therapy. 7 months post transplantation, patient presented with skin rash and tingling in both feet that progressed rapidly to lower extremity paralysis over the course of 2 days. Physical exam showed maculo-papular rash affecting his upper extremities, upper chest and back area. Neurologic exam was significant for motor weakness in lower extremities 2/5, plantar flexion and knee flexion 3/5. He had loss of deep tendon reflexes in both lower extremities (Achilles and Patellar) and upper extremities (biceps and triceps). Workup revealed normal blood counts, organ function, vitamin B12, folate, TSH level, free cortisol. SPEP and immunfixation were also normal. Magnetic resonance imaging of the CNS was normal. Serology for Lyme disease, Epstein Bar virus (EBV), syphilis, cytomegalo virus (CMV), Hepatitis, HIV, toxoplasma, enterovirus and human herpes virus 6 was negative. Blood tests for autoimmune markers including ANA, acetylcholine esterase and volted calcium channel antibodies were normal. A lumbar puncture showed high protein level of 67mg/dl, 1 nucleated cell/mm3 and normal glucose. CSF was negative for oligoclonal bands, West Nile virus, cryptosporidium, HHV6, HSV 1 and 2, gram stain and cultures. Nerve conduction studies and needle electormyegraphy were suggestive of AIDP.

Based on the above workup, he was diagnosed with GBS and started on therapy with intravenous immunoglobulin at 0.5gm/kg for 4 days and prednisone 1mg/kg daily for the treatment of GVHD. Etiology of GBS was presumed to be related to GVHD as his workup was negative for campylobacter, HIV and CMV. He became ambulatory without assistance in 4 weeks but his weakness symptoms relapsed with prednisone was taper. Prednisone was increased again to 1mg/kg and sirolimus was started. Patient was successfully tapered of prednisone and remains fully ambulatory without assistance or evidence of GVHD on single agent sirolimus 16 months post DUCBT.

This is the first case of autoimmune demyelinating polyneuropathy post DUCBT with association of GVHD that was managed successfully with a combination of intravenous immunoglobulins, steroids and sirolimus.

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IL-12hi Rapamycin-Conditioned Dendritic Cells Mediate IFN-γ-Dependent and Fas-Supported Apoptosis of Alloreactive CD4+ T Cells and Inhibit Graft-Versus-Host Disease

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Rapamycin inhibits mTOR, a crucial immune regulator. RAPA-conditioned DC (RAPA-DC) enrich for Treg and induce alloreactive T cell apoptosis. They promote experimental allograft survival, yet secrete increased IL-12, crucial for generation of IFN-$\gamma^{+}CD4^{+}$ T cells. IFN-γ is also pro-apoptotic and IL-12-driven IFN-γ inhibits GVHD. We hypothesized that IL-12^{hi} RAPA-DC would facilitate IFN-γ-mediated alloreactive